AMENDMENTS TO THE CLAIMS

Please amend Claims 4 and 16 as follows.

LISTING OF CLAIMS

1. (previously presented) A solid catalyst for ethylene polymerization, comprising a magnesium halide derived from a magnesium compound represented by a formula $(RMgX)_p(MgX_2)_q$, in which R is an alkyl group having from 3 to 12 carbon atoms, X is halogen, and the molar ratio of q to p is between 0 and 1.

2. (previously presented) The solid catalyst of claim 1, wherein the molar ratio of q to p is in the range of from 0.05 to 0.95.

3. (previously presented) The solid catalyst of claim 1, wherein X in the magnesium compound is chlorine.

4. (currently amended) A process for preparing [[the]] <u>a</u> catalyst for ethylene polymerization ~~of claim 1~~, <u>the catalyst comprising a magnesium halide derived from a magnesium compound represented by a formula $(RMgX)_p(MgX_2)_q$, in which R is an alkyl group having from 3 to 12 carbon atoms, X is halogen, and the molar ratio of q to p is between 0 and 1</u>; wherein the solid catalyst for the ethylene polymerization is prepared by a process comprising:

(1) reacting powdered magnesium with an alkyl halide of formula RX in an ether solvent to form a magnesium compound having a structure of formula $(RMgX)_p(MgX_2)_q$, in which R is an alkyl group having from 3 to 12 carbon atoms, X is

halogen, and the molar ratio of q to p is between 0 and 1, wherein the molar ratio of the powdered magnesium to the alkyl halide is from 1:1 to 1:3;

(2) impregnating the magnesium compound onto silica carrier and drying to provide a magnesium compound-loaded silica support, wherein the silica is used in such an amount that per gram silica loads from 0.5 to 5.0 mmol of magnesium element;

(3) reacting the magnesium compound-loaded silica support of step (2) with an alkyl halide of formula R^1X, in which R^1 is an alkyl group having from 3 to 12 carbon atoms and X is halogen, in an alkane solvent to give a product, wherein the molar ratio of Mg in the magnesium compound to the alkyl halide is in the range from 1:1 to 1:10;

(4) reacting the product obtained from step (3) with a titanium compound and an alkyl aluminum compound to form a main catalyst component, wherein the titanium compound has a structure represented by formula $Ti(OR^2)_mCl_{4-m}$, R^2 is an alkyl group having from 1 to 4 carbon atoms and m is from 0 to 4, the molar ratio of the Mg in the magnesium compound to the Ti in the titanium compound is in the range from 1:0.15 to 1:2.5, and wherein the alkyl aluminum compound has a structure represented by formula $R^3_nAlCl_{3-n}$, R^3 is an alkyl group having from 1 to 14 carbon atoms and n is from 1 to 3, the molar ratio of the Mg in the magnesium compound to the Al in the alkyl aluminum compound is in the range from 1:0.08 to 1:3; and

(5) contacting the main catalyst component with a cocatalyst component to form the catalyst for ethylene polymerization, wherein the cocatalyst component is an

organo-aluminum compound, and the molar ratio of the Ti in the main catalyst component to the Al in the cocatalyst component is in the range from 1:30 to 1:300.

5. (previously presented) The process according to claim 4, wherein the molar ratio of q to p is in the range of from 0.05 to 0.95.

6. (previously presented) The process according to claim 4, wherein X in the magnesium compound is chlorine.

7. (previously presented) The process according to claim 4, wherein the ether solvent is aliphatic hydrocarbyl ethers, aromatic hydrocarbyl ethers or cyclic ethers.

8. (previously presented) The process according to claim 7, wherein the ether solvent is diethyl ether, di-n-propyl ether, di-n-butyl ether, di-isobutyl ether, diphenyl ether, methyl phenyl ether, tetrahydrofuran, or mixture thereof.

9. (previously presented) The process according to claim 4, wherein the organo-aluminum compound is triethyl aluminum, diethyl aluminum chloride, triisobutyl aluminum, tri-n-hexyl aluminum, or mixture thereof.

10. (previously presented) The process according to claim 4, wherein the alkyl halide of formula RX and formula R^1X is an alkyl chloride.

11. (previously presented) The process according to claim 10, wherein the alkyl halide of formula RX and formula R^1X is independently chloropropane, chloro-n-butane, isobutyl chloride, isopentyl chloride or mixture thereof.

12. (previously presented) The process according to claim 4, wherein the titanium compound is titanium tetrachloride, tetrabutyl titanate, methoxy titanium trichloride, butoxy titanium trichloride, or mixture thereof.

13. (previously presented) The process according to claim 4, wherein the alkyl aluminum compound is triethyl aluminum, triisopropyl aluminum, triisobutyl aluminum, tri-n-hexyl aluminum, tri-n-octyl aluminum, tri(2-ethylhexyl) aluminum, diethyl aluminum chloride, ethyl aluminum dichloride, diisopropyl aluminum chloride, ethyl aluminum sesquichloride, butyl aluminum sesquichloride, or mixture thereof.

14. (previously presented) The process according to claim 4, wherein the alkane solvent is an paraffin hydrocarbon.

15. (previously presented) The process according to claim 14, wherein the alkane solvent is isopentane, hexane, n-heptane, octane, nonane, decane, or mixture thereof.

16. (currently amended) ~~A process for preparing the catalyst for ethylene polymerization of claim 1, wherein said process comprises the steps of:~~ A solid catalyst for ethylene polymerization, comprising a magnesium halide derived from a magnesium compound represented by a formula $(RMgX)_p(MgX_2)_q$, in which R is an alkyl group having from 3 to 12 carbon atoms, X is halogen, and the molar ratio of q to p is between 0 and 1; wherein the solid catalyst for the ethylene polymerization is prepared by a process comprising:

(1) reacting powdered magnesium with an alkyl halide of formula RX in an ether solvent to form a magnesium compound having a structure of formula $(RMgX)_p(MgX_2)_q$, in which R is an alkyl group having from 3 to 12 carbon atoms, X is halogen, and the molar ratio of q to p is between 0 and 1, wherein the molar ratio of the powdered magnesium to the alkyl halide is in the range from 1:1 to 1:3;

(2) impregnating the magnesium compound onto silica carrier and drying to provide a magnesium compound-loaded silica support, wherein the silica is used in such an amount that per gram silica loads from 0.5 to 5.0 mmol of magnesium element;

(3) reacting the magnesium compound-loaded silica support of step (2) with a titanium compound and an alkyl aluminum compound to give a product, wherein the titanium compound has a structure represented by formula $Ti(OR^2)_mCl_{4-m}$, where R^2 is an alkyl group having from 1 to 4 carbon atoms and m is from 0 to 4, and the molar ratio of the Mg in the magnesium compound to the Ti in the titanium compound is in the range from 1:0.15 to 1:2.5, and wherein the alkyl aluminum compound has a structure represented by formula $R^3{}_nAlCl_{3-n}$, where R^3 is an alkyl group having from 1

to 14 carbon atoms and n is from 1 to 3, and the molar ratio of the Mg in the magnesium compound to the Al in the alkyl aluminum compound is in the range from 1:0.08 to 1:3;

(4) reacting the product obtained from step (3) with an alkyl halide of formula R^1X, in which R^1 is an alkyl group having from 3 to 12 carbon atoms and X is halogen, in an alkane solvent to form a main catalyst component, wherein the molar ratio of Mg in the magnesium compound to the alkyl halide is in the range from 1:1 to 1:10; and

(5) contacting the main catalyst component with a cocatalyst component to form the catalyst for ethylene polymerization, wherein the cocatalyst component is an organo-aluminum compound, and the molar ratio of the Ti in the main catalyst component to the Al in the cocatalyst component is in the range from 1:30 to 1:300.

17. (previously presented) A polymerization process, comprising contacting ethylene and the catalyst of claim 1.

18. (previously presented) The polymerization process of claim 17, wherein the main catalyst component is suspended in a mineral oil to form a slurry for the polymerization of ethylene, and said main catalyst component comprises from 20 to 30 percent by weight of the slurry.